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The Identification of Chronic Pleuritis

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INFLAMMATION of the serous membrane lining the pleural sacs should always be regarded as a warning of deeper-seated pathology and it deserves further investigation in order to determine its incidence and importance. Eighty percent of so-called primary sero-fibrinous pleuritis is tuberculous in origin and simultaneously or later is found to be secondary to a primary pulmonary tuberculous focus, often very small. (1) Microscopic examination of the exudates demonstrates that 30 percent contain tubercle bacilli and guinea-pig inoculations show a greater percentage of positive results. Pleuritis, so often accompanied by a distressing pain, is frequently considered too lightly and after a few measures to allay the discomfort, is left alone. This is a mistake, for figures show that 30 percent of patients who have pleuritis subsequently develop active pulmonary tuberculosis. (2) Pleural inflammation nearly always accompanies lobar pneumonia, pulmonary infarct and sometimes broncho-pneumonia, but in the cases examined, it was not a part of an active pneumonia or infarct and frequent experience with pleuritis of such origin shows that physical and radiological signs do not persist except in empyema or haemothorax. Therefore, when these signs persist they are much more suggestive of a tuberculous lesion than any other type of pathological condition.

PATHOLOGICAL ASPECT OF CHRONIC PLEURITIS

The morbid anatomy of pleuritis must be considered in order to appreciate the findings elicited by physical examination and the radiogram, long after the stabbing pain has been nearly forgotten. In response to an irritant, the pleura becomes inflamed and an exudate is poured out on its surface and in some manner—possibly by the stretching of the inflamed serous coat—pain is set up. In most cases, the exudate is fibrinous in character, and it is so scant in quantity that it

cannot be detected by physical signs, x-ray examination or by aspiration, but it merely gives the pleura a lack-lustre appearance over the area involved. In cases of massive effusion, the quantity of fluid may amount to several liters and completely compress the lung. (1) It is usually clear, straw-colored, with a specific gravity of 1016; rich in albumin; it often coagulates on standing (showing its fibrinous character) and contains leucocytes, erythrocytes and endothelial cells.

However small in quantity the exudate may be, the fluid gravitates to the lowest part of the pleural sac, which is the costophrenic sulcus, and it is there that the most valuable information is found. When the acute stage is over and repair is initiated, some of the exudate undergoes resolution. In the majority of cases, however, organization is the rule. New fibroblasts and a capillary network appear. Connective tissue fibers stretch between the two surfaces and, especially in those cases which are secondary to a tuberculous pulmonary focus, tough fibrous bands bind the lung and the parietal pleura. Such organization takes place in the costophrenic sulcus, which is bordered by pleural surfaces, resulting in adherence of the diaphragm to the parietal chest wall, and obliterating the sulcus, or binding the base of the lung to the diaphragm producing irregularities in its contour and partial or complete immobilization.

STANDARDS FOR THE IDENTIFICATION OF CHRONIC PLEURISY

The following data were recorded for each of the subjects examined in this study. All of the individuals had some pulmonary pathology such as tuberculosis, bronchiectasis or septic pneumonitis. Cases of empyema were not included.

I. HISTORY: The following were asked each patient in order to determine historical evidence of pleuritis:

(1) Did you ever have pleurisy? Many patients are fully aware of the condition and a diagnosis may have been made.

(2) Did you ever have pain in your chest? What was it like, what was its location, and how severe was it? Nearly all patients can answer these accurately and know which side was affected.

(3) Were you confined to bed? This is an important indication of the severity and therefore of the reality of the pleuritis.

(4) Was a physician in attendance?

(5) What was the treatment? (a) Was your chest strapped or a binder applied? (b) Were sinapisms or other counter-irritants used? (c) Was the chest aspirated or a needle inserted between the ribs? (d) Was a hypodermic injection given for the relief of the pain?

(6) How long did the condition last?

(7) Did you have pneumonia at the same time?

(8) Has it ever recurred? If so, how often?

Positive answers to one or more of these questions may be regarded as presumptive evidence of the existence of an inflammatory pleuritis at some time. The questions which were taken to be the most positive historical evidence were numbers 1, 2 and 5. A history of aspiration was not frequent as this is done only in cases of massive pleural effusion.

II. PHYSICAL SIGNS: The physical signs indicative of chronic pleuritis are four in number and they can be elicited only with care and practice, especially as regards percussion. Light percussion only can be used to advantage as heavy percussion will not elicit minor changes in resonance. These signs are:

(1) Impairment of resonance. This is slight in many cases, but can be detected. After some practice it is found most often at the lower and posterior part of the thorax.

(2) Enfeeblement of breath sounds. This is usually elicited during a deep breath and nearly always by comparing the two sides. It is not a convincing sign.

(3) Diminished excursion of the diaphragm. This is the most important single physical sign. It is the most constant and is elicited by percussion. Light percussion is carried down the back until the diaphragm is reached during expiration; a flat note indicates its level. Then the patient is asked to take a deep breath and hold it. Percussion is again carried to the level where a flat note is produced. The difference between the levels is the extent of movement.

(4) Respiratory lag on the affected side. This sign is elicited by kneeling in front of the patient, placing the flat of the hands on the upper part of the thorax and asking him to take a deep breath. By watching the hands as they rise, any lag can be seen readily. Other conditions, however, may produce such a lag, *e.g.* atelectasis.

As stated above, the diminished excursion of the diaphragm is the most important single sign. It is so constant that it alone could be considered as positive evidence, but it is so nearly always accompanied by either impairment of resonance or enfeeblement of breath sounds, that the occurrence of these two or three may be regarded as presumptive evidence of the existence of chronic pleural injury.

III. RADIOLOGICAL SIGNS: The radiogram is an important adjunct in attempting to verify the history and physical findings. The most important findings are:

(1) Obliteration of the costophrenic sulcus. This may be partial or complete.

(2) Variations in the contour of the domes of the diaphragm.

(3) Diffuse pleural thickening.

(4) Line of pleural thickening rising into the axilla.

The first of these signs is the most constant and it alone may be considered as presumptive evidence of chronic pleural injury; such

obliteration of the costophrenic sulcus, partial or complete, is easily recognized. The domes of the diaphragm are often irregular in contour and the irregularities are produced in most cases by adhesions between the diaphragm and the bases of the lung. These irregularities may take the form of tenting and quilting. However, patients holding their breath from nervous tension during sustained inspiration will sometimes show quilting in one of a stereoscopic pair so that it is necessary to examine both films.

Diffuse pleural thickening was not recognized in many of the cases examined. The film is not highly sensitive to diffuse density differences and well-marked pleural thickening is necessary to ensure the identification of diffuse opacity; the variations in muscular thickness are a confusing element.

A line of thickened pleura is sometimes seen rising into the axilla. This line runs off the diaphragm to the parietal chest wall, along the inner margin of the ribs in the mid-axillary line into the axilla. It is demonstrated because the x-rays have to penetrate a greater depth of thickened pleura there than any other place in the thorax. This sign is presumptive evidence of the presence of former effusion.

THE RESULTS OF THE INVESTIGATION

Of the 89 cases which were examined and judged by the above criteria, 79 were found to have presumptive evidence of chronic pleural damage. The remaining 10 cases are not included in the series. The results of each method of detection are listed below, showing the number considered presumptive by each method, in the order of their relative merits:

1. Physical findings positive in 76 cases (96% of 79 cases)
   - History alone 9
   - Supported by—
     - X-ray alone 16
     - Physical findings and x-ray 35
     - History and x-ray 35
     - 60—79% (of 76 cases)
   - Unsupported by any other evidence ... 16—21%

2. X-ray positive in 53 cases (67% of 79 cases)
   - History alone 9
   - Supported by—
     - Physical findings alone 16
     - Physical and history 35
     - 51—96% (of 53 cases)
   - Unsupported by any other evidence ... 2— 4%

3. History positive in 48 cases (61% of 79 cases)

Physical findings alone	9	
Supported by—		
X-ray alone	0	
Physical findings and x-ray	35	
	44—92%	(of 48 cases)
Unsupported by any other evidence	4— 8%	

From the above table the following deductions may be made:

(1) If the frequency of a finding may be taken as an index of its value in the identification of a condition it would seem that the physical signs over the thorax, when skilfully elicited, furnish the best and most constant evidence of the existence of chronic pleuritis. Thus, such signs were demonstrated in 96 percent of the group having presumptive evidence of the condition. The next most frequent finding was positive radiographic evidence which occurred in 67 percent of the cases. Clear historical evidence was the least frequent, occurring in only 61 percent of the group.

(2) The association of two or more types of positive evidence is, of course, more convincing than any one finding can be. Two or more positive types of evidence were present in 76 percent of the cases but all three types of examination were positive in only 44 percent. It is apparent, therefore, as in all diseases, that diagnosis cannot depend entirely upon a close agreement among the usual types of evidence.

(3) Because of the difficulty of determining whether or not chest pain is due to inflammatory pleuritis, one would expect the history to be the most inaccurate means by which the disease can be identified. This statement is corroborated by the fact that no positive history was obtained in 39 percent of the cases in which chronic pleural disease was concluded to be present, as compared with 31 percent of failures by radiographic methods and only 4 percent by physical signs. For the support was provided by post-mortem observations where marked adhesions and pocketed pleural effusions were frequently encountered that were not suspected during life.

(4) Conversely, it would seem that if one had to rely solely on physical signs, that only 4 percent of cases of chronic pleuritis would be overlooked. If, however, one relied only upon the radiographs or on the history, 33 percent and 39 percent respectively of the cases would not be identified.

(5) Since radiography for economic reasons is not always readily available, it is important to see what proportion of cases of chronic pleuritis will remain unidentified when this method of examination is not used. It will be seen that in only two cases, or 2.5 percent of the group, was the x-ray evidence positive in the absence of either a positive history of physical sign of pleuritis. We may, therefore, conclude that

the absence of radiography does not constitute a serious handicap insofar as the identification of this condition is concerned.

(6) The condition being relatively a "surface" one, readily lends itself to recognition by conventional physical methods. This is, unfortunately, not true for changes which lie other than at the immediate surface of the lungs. Thus, when chronic pleuritis is identified, radiography is imperative, not to confirm the diagnosis but to determine the presence or absence of more serious associated pulmonary pathology.

SUMMARY

1. An investigation has been made to determine the relative merits of the different methods by which chronic pleuritis may be identified, namely, clinical history, physical examination and radiography. For this purpose, 89 patients were studied.

2. Physical signs were positive in 96 percent of the cases in which presumptive evidence of chronic pleuritis existed.

3. Positive radiological findings were elicited in 67 percent of cases of presumptive chronic pleuritis.

4. It is concluded, therefore, that physical examination of the thorax provides the best evidence of the existence of chronic pleuritis and that radiography is not necessary for this purpose. However, radiography cannot be omitted as the presence of this condition imperatively requires a search for more deep-seated pulmonary disease, not easily and efficiently detected by the conventional physical methods of examination.

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The Management of Congestive Heart Failure*

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IN few departments of medicine is careful and skillful treatment of so great importance as in that of cardiac disorders, and in few is it so well rewarded. Since we are all seeing heart patients frequently. I felt that it would be permissible to review the common trends in this particular field.

DEFINITION

Under certain circumstances the heart is unable to maintain an adequate circulation: stasis then occurs in various parts of the body, with increase of venous pressure. When such a state gives rise to symptoms it is called congestive heart failure. Hearts may fail abruptly or slowly, and so we may have symptoms occurring suddenly or gradually.

AETIOLOGY

Congestive failure appears when the ventricular muscle fails in its work: the fundamental cause of the failure is not known. But the most important conditions that lead up to it are: (1) Valvular Disease, (2) Hypertension, (3) Coronary Disease, (4) Thyroid Conditions, (5) Emphysema, (6) The Irregularities of Cardiac Rhythm, (7) Adhesive Pericarditis, and (8) Congenital Defects. Precipitating factors as (1) Over-exertion, (2) Over-eating, (3) Infections, (4) Worry, and (5) Sleeplessness can sometimes be pointed out as causes, but in many instances no such reasons are valid.

CLINICAL PICTURE

The stasis resulting from failure of the left ventricle gives rise to rales and rhonchi in the lung fields.

While failure of the right side of the heart brings about dilated veins in the neck, oedema of the dependent parts (even the face and arms sometimes), engorgement of the liver and other abdominal organs, and the occasional development of ascites, hydrothorax, or hydropericardium. Both sides of the heart usually fail together in the last analysis, however, and in most advanced cases of congested failure, there is stasis in the pulmonary, systemic and portal venous systems.

Complicating conditions that may call for special care are often seen as the results of impaired circulation in various organs, and examples of these are: (1) Cardiac Psychoses, (2) Lung Infarcts, (3) Pain in the region of an enlarged liver, (4) Uremia, (5) Flatulence and Vomiting, (6) Menorrhagia, and (7) Ulceration of the skin of oedematous legs.

TREATMENT

Before treating the patient, a survey of the causes must be made.

*This paper was read at the Noonday Study Club, London, Ontario.

And then one must decide for or against hospitalization: when home conditions are favourable one would hesitate in moving the case to an institution.

Treatment consists for the most part in the use of Rest, Morphia, and Digitalis.

Rest for a period of days or weeks is always indicated when outspoken signs of congestive failure are evident. Such patients should be allowed to assume the position they find most comfortable, as such positions will always improve the circulation in the organs where distress is induced (brain and lungs) even at the expense of increased swelling of the feet. An upright or semi-upright position in a comfortable bed or even a chair is the most desirable one so far as the heart is concerned. The rest should be as complete as possible; bathroom privileges must be denied, the patient should be fed, and lifted when he wishes to change his position in bed. The chief drug for promoting rest is morphia; it can and should be used freely whenever the patient is restless—and especially when the breathing is distressed. During the first two or three days, ¼-grain every six or eight hours may be used to great advantage; and in hopeless cases this regime may be adhered to for weeks if necessary. There is little if any danger of habit formation so long as the use of the drug is confined to periods of real discomfort. As a rule sleep will follow the use of morphia, but in some cases it will be necessary to add one of the barbituric acid derivatives; in the milder conditions, such drugs alone will prove quite sufficient.

Digitalis: Standardization is now uniform by law so that the product of any recognized drug house can be relied upon.

The preparation that is simplest, cheapest, and most reliable is the dried leaf put up in capsules or tablets of 1 or 1½ grains; in this form, deterioration is minimal and dosage is always definite. Many so-called "active principles" of digitalis as (1) digitalin, (2) digitoxin, (3) digitonin, have all been advocated, mostly by drug houses; however, the whole leaf is entirely satisfactory when used correctly. In this regard Cushny says: "so-called pure principles of digitalis are to be looked on with distrust and prescribed with care." For the few patients who are vomiting, sterile preparations of the drug can be obtained in ampoules and given subcutaneously or intramuscularly during the period of gastric disturbance. In very rare instances *where a patient who has not been getting digitalis* is seen in extremis, it is permissible to use ouabain or strophanthin intravenously in a dose of $\frac{1}{240}$ to $\frac{1}{120}$ grain repeated in 12 hours if necessary, and followed then by digitalis in the form indicated by the patient's condition.

The action of digitalis is principally on the conducting structures but also on the heart muscle; it is because of this latter action that it holds such an important place in the treatment of congestive failure where the rhythm is regular. Occasionally the drug initiates flutter, fibrillation, or bigeminal rhythm where normal rhythm has existed

prior to its use: in these instances the drug must be abandoned (at least temporarily).

The dosage: thorough digitalization is the only rational way in which to use the drug in the face of congestive failure. Digitalization consists in the rapid or gradual saturation of the patient's system with the drug until full therapeutic effect on the heart, or toxic symptoms develop. These two effects lie very close to each other, and in some cases it is necessary to continue until nausea occurs; this is especially true in cases with normal rhythm, for in these, slowing of the rate is not a characteristic action of digitalis.

Patients weighing 125 to 175 pounds will usually be digitalized with from 15 to 30 grains of the powdered leaf. There are many rules pertaining to the way in which the doses should be spaced. One that seems to be as practical as any is to give 15 grains within the first 24 hours, followed by 1½ grains three times daily until the desired effect has been obtained, after which the maintenance dose is continued. It is most important that the maintenance be adhered to rigidly, in order that recurring episodes of failure may be averted. It will usually be found that 1½ or 2 grains will suffice; patients soon learn when to omit the dose for a day or two when toxic symptoms appear.

DIET AND FLUIDS

In cases of heart failure, the gastro-intestinal functions are impaired, so that only the most digestible foods and fluids should be allowed. Small meals, made up of foods that the patient happens to fancy, can be given three to five times daily, depending on the seriousness of the case. The main caloric content should be made up of carbohydrates and proteins. In severe conditions where there is a lot of gastric distress, a Karrell diet of 200 ccs. of milk with a cracker given four times a day may work out well during the first two or three days. In the presence of oedema, fluids may be limited to 1000 cc. in 24 hours except in hot weather when 1500 cc. may be allowed; they are tolerated best between meals. Intravenous fluids in large quantities are not indicated in this group of patients, although 50 cc. ampoules of glucose can be given if the calories are needed. Some men still believe that the myocardium requires the added carbohydrate. If oedema is marked, it is wise to discontinue the addition of salt to the cooked food, but more rigorous restrictions than this are unnecessary, and only add to the patient's discomfort.

DIURETICS

In the large majority of cases, rest and digitalis will bring about a very ample loss of fluid. In the group in which the oedema persists it may be attacked more directly. Dependent oedema itself does not increase the work of the heart materially, but it does impose a heavy burden on the minds of patient and relatives alike; because a case of dropsy is usually regarded as hopeless. Therefore the psychic uplift that comes with disappearing oedema is well worth working for.

Theobromine sodium salicylate (diuretin) is valuable as a diuretic,

and it may also have a slight dilating effect on the coronary arteries; it is best given in dosage of 7½ grains T. I. D. for three days every two weeks. Sometimes when this drug fails, theocin 3 grains T. I. D. for three days will accomplish the desired effect; but either one may prove disappointing and may even produce nausea and vomiting. In obstinate cases the mercurial diuretic salyrgan is most dependable. It can be safely used in the absence of marked kidney damage; and if the specific gravity of the urine is above 1020 one can consider the renal function adequate, since the presence of albumin, casts, and an elevated N. P. N. may occur in congestive failure where the kidneys are normal (working rule). Salyrgan usually works best when preceded for three or four days by a course of ammonium chloride in dosage of 30 grains T. I. D. by mouth. Salyrgan is given intravenously. The first dose should be limited to ½ cc., and after that 1 cc. doses can be employed. The drug may be given over 3 - 4 successive days if needed at one course; it has no toxic effects as a rule, and can be used repeatedly over periods of months in certain cases; it is best given in the morning so that the diuresis resulting will not interfere with the night's sleep.

CATHARTICS

In the absence of flatulence, any of the simple vegetable laxatives given every day or two will prove sufficient; occasionally a suppository or small enema may be required also. Where the patient is embarrassed by distension, $MgSo_4$ will give relief in 1 ounce doses every morning while needed.

MECHANICAL PROCEDURES

When these are indicated they should be carried out promptly.

HYDROTHORAX is a common finding of importance, and may occur on one or both sides of the chest. Its removal by aspiration yields the patient much relief. Not more than 1000 cc. should be removed at one time, since shock sometimes follows the withdrawal of larger amounts.

ASCITES may be very marked. Here again aspiration can be used to excellent advantage. Two to four litres can be safely taken off at one time.

HYDROPERICARDIUM, although rare in congestive failure, is nevertheless seen. Its recognition is of course all-important. Aspiration to the left of the xiphoid, along the left border of the heart, or through the left posterior chest, is quite safe.

OEDEMA of the legs may continue in spite of all medical treatment. It can be removed through Southey's tubes or several large needles, or through multiple stab incisions to the subcutaneous tissues (followed by the application of sterile dressings). Several quarts of fluid may be removed within a couple of days by this method. Extreme swelling of the scrotum is best managed by elevation, since the thinning out and malnutrition of the skin makes gangrene a very frequent complication of needling or incision. Oedema of the brain does occur sometimes in congestive failure, but it does not call for special treatment.

VENESECTION (and its equivalents). In the cases that present real congestion of the veins, this procedure is certainly valuable and often life-saving. 200 - 500 cc. can be readily taken from the basilic vein at one time; it is not necessary to remove more than this amount. The diminished blood volume returned to the right heart seems to allow the cardiac muscle to regain a certain amount of tone. It is also employed, but less successfully, in attacks of pulmonary oedema when these reflect left ventricular failure.

Sometimes equivalent or even superior results can be obtained by the use of tourniquets placed around the thighs and arms—with sufficient tension to retard the return flow through the veins without obstructing the arterial flow. In this way, the venous flow to the right heart is reduced substantially due to the induced stagnation of blood in the extremities.

For the sake of completeness, a few of the more unusual procedures may be given.

(1) Adhesive Pericarditis: here the heart tugs on the bony structures of the thoracic cage with every contraction. Great relief generally follows the cutting away of the adhesions and the attached ribs.

(2) Arterio-venous Aneurysm: with this short circuit there is a situation like that met with in aortic insufficiency; when the shunt is a large one, the heart may undergo dilatation, hypertrophy, and failure. Obliteration of the communication results in a return of normal circulation.

(3) Myxoedema: heart failure appears in some of these patients; often along with the development of a pericardial effusion. The careful administration of thyroid extract usually improves the clinical picture materially.

(4) Total Thyroidectomy: in thyrotoxicosis the circulation rate is far above the normal, with a commensurate increase in the work that the heart is called upon to perform; but in complete myxoedema with a B.M.R. of −40 the circulation rate may only be 20% of the normal. In view of these facts, it was felt that the surgical production of myxoedema in heart failure cases might prove of value in decreasing the work of an exhausted organ. Many cases have already been subjected to complete thyroidectomy—in some instances with marked benefit. However, time alone will tell us the real merit of this experiment.

(5) Mitral Stenosis: has been dealt with by a divison of the valve ring—but without lasting improvement.

After all the therapy has been used, *and while it is being used*, let us continue always to reassure the patient. Let us remove the sudden death sword that these people so often clutch. If the relatives are sensible then they may be entrusted with it; if they are not, then it had better be thrown away altogether. Cardiacs tend to be cheerful, it is our duty to keep them that way.

Psychological Medicine*

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I DESIRE to present certain aspects of the practice of medicine apart from those which are usually thought of, namely, that we as physicians are not merely mechanics of the body. The individual is a great deal more than simply the body and yet one can hardly speak of the body as separate from the mind. Body and mind are two aspects of the total individual and are so interwoven and interdependent that each can only be spoken of as an abstraction, the reality being the striving, hoping, fearing individual in his struggles with his environment.

This conception of the total individual is sometimes spoken of as Psychobiology, a term which has been brought into some prominence by Adolph Meyer, professor of Psychiatry at Johns Hopkins, and who is regarded as the Father of American Psychiatry. He quite properly regards biology as much more than trophic, reflex, or other simple physiological reactions of organs or systems of organs and I think we will find ourselves in accord with this point of view. Life or Psychobiology is really the adjustments and attempts at adjustment of the individual in his day by day living and the changes that are made on the individual by the stresses of his environment.

The practical application of this conception is that, as physicians, we are treating not only the body but the individual as a whole, having in mind that his difficulties, hopes, fears, successes and failures all have an influence on his state of health, his happiness and his speed of recovery from illness.

The effect of disturbed emotions on health is not always fully realized. Professor Cannon of Harvard has shown by his work on experimental animals, the results of which are incorporated in his remarkable book "Bodily Changes in Pain, Hunger, Fear and Rage," that distressing emotions such as those just referred to operate through the autonomic nervous system and by the liberation of adrenalin produce marked visceral changes as follows: dilation of the pupil, dryness of the mouth, rapid breathing, rapid heart and increased blood pressure, decreased gastric and intestinal mobility, cessation of flow of the digestive juices. This of course is a defensive mechanism that nature has given to vertebrates, including the human vertebrate, so that when faced by a foe, it may use these mechanisms, including the removal of blood from the splenchnic reservoir to the skeletal muscles, to enable it to fight better or escape more rapidly, depending on which of these two courses of action will serve its best interests in the dangerous situation.

*This paper was read at the Noonday Study Club, London, Ontario.

While the human animal seldom needs to call on this archaic defensive system, it still remains and is still responsive to these emotional stimuli. Fear, anger, hatred, jealousy, distress still provoke these defensive measures, although we may not be facing a physical foe and may not need to run or fight. Consequently, we find patients suffering from disturbed emotions due to personal and environmental difficulties, with rapid hearts, high blood pressure, poor digestion and constipation. As long as the emotional stress persists these symptoms may persist and may lead to others. The extra cardiac effort may lead to enlargement of the heart and arterial and kidney damage. The lack of digestive juices may lead to a chronic digestive disorder and perhaps be a predisposing factor in gastric ulcer or cancer. The sluggish peristalsis may lead to chronic constipation, haemorrhoids or colitis. The strain on the adrenals may lead to a secondary adrenalin insufficiency, a hyperthyroidism or loss of sexual vigor, with a secondary set of emotional disturbances. A vicious circle may thereby be established. If the examining physician limits his examination only to the heart, or to the stomach, or to the thyroid, as the case may be, he may be disappointed with his therapeutic results. If on the other hand he remembers that he is treating a total personality, he may find it necessary to inquire into the emotional stresses, and insofar as he is able to ameliorate these stresses, is he likely to obtain better therapeutic results.

It should be remembered too that people are not all alike. We recognize constitutional differences in horses for example. We think of the race horse, slender and streamlined and with a characteristically excitable and unstable temperament or disposition, and at the other end of the line we have the heavy draft horse, big boned and heavily muscled and also with a characteristically stolid, phlegmatic and unimaginative disposition. Both are horses but neither is capable of doing what the other one can do. Similarly with people.

It has long been known that people vary in their temperaments. Hippocrates spoke of the phlegmatic, the sanguine, the choleric types. William James spoke of the tender-minded and the tough-minded people. Jung has divided people roughly into the introverted class and the extroverted class and these latter terms are in common use as indicating the interests of the individual and the direction of his flow of energy. The introverted person tends to be somewhat shy, has difficulty making friends, is self-conscious, sensitive, easily hurt, often enjoys solitude, perhaps lacking in self confidence, somewhat impractical, a dreamer, a thinker and tends to prefer games of an intellectual or individualistic nature and work requiring perhaps less manual dexterity than mental dexterity.

The extroverted person, conversely, tends to be a hale-fellow-well-met, gregarious and a good mixer, is uncomfortable when alone, much more interested in things about him than in his own mental processes, is practical and typically prefers group games and in work prefers the accomplishment of materialistic projects.

Shakespeare, who seems to have known all things, was aware of these varying temperaments and knew also that they tended to be associated with rather definite types of body build. He says, "Let me have men about me that are fat, sleek men that sleep o' nights. You, Cassius, hath a lean and hungry look. Such men are dangerous." The hearty, bluff, pleasure-seeking Falstaff and Henry VIII are described as big and solid types. The moody and introspective Hamlet is of frail, delicate and wan physique.

Kretschmer, the German Psychiatrist, has divided people into three main groups in his book "Character and Physique"— the asthenic, frail, slender and linear; the athletic—better muscled than the asthenic but no surplus fat, and thirdly the pyknik—solid, thick set, round headed with short neck. Kretschmer finds that people of asthenic or athletic build tend to be predominantly introverted while the pyknik type tends to be predominantly extroverted. These are known as psychotrological types. The work of other investigators, as well as our own, tends to largely confirm Kretschmer's findings. These findings have several important relationships in general medicine. For example, asthenic and athletic types tend to have small hearts, poor peripheral circulation and are prone to respiratory and gastro-intestinal disorders. The pyknik type tend to develop high blood pressure, heart disease, cancer and diabetes. Moreover, if you take a mental impression of the body build of each patient you will also likely gain an impression of his personality type and will be able to give an approximate valuation of his mental tendencies and emotional reactions. Further, we find that the majority of neurasthenic and manic depressive patients favour the pyknik build, whereas the majority of hysteric and dementia praecox patients have the asthenic or athletic body build.

I will take time only to mention the fact, too, that many of our personality features appear to be determined by the condition and state of activity of our endocrine glands. The possession of physical courage, for example, is largely dependent on the thickness of the medullary portion of our adrenal glands; our physical drive may be determined by the activity of our thyroids; our intellectual activity by the activity of our anterior pituitary; our sexual and social energy, behaviour, and efficiency by the efficiency of our gonads.

Reverting to dementia praecox (now more commonly known as schizophrenia), manic depressive psychosis, hysteria and neurasthenia. I might say that these are commonly known as the biogenic psychoses; that is, having their origin in the life experiences of the individual. So far as we know, these individuals have nothing wrong with their brains, no organic brain change or toxemia affecting the brain, but these conditions may be considered as reactions to intolerable emotional or environmental stress. The intolerable feature may be the severity of the external stress of the mental constitution of the individual who may not tolerate even ordinary stresses at all well. These conditions are not the reaction of the brain alone but are the reaction of the total

individual to a total situation. They can and should, however, be regarded as unusual delirious states and therefore, although strictly within the field of psychological medicine, are just as strictly within the field of the general practitioner.

Observations such as these bring up the subject of psychotherapy —the attempt to counteract faulty psychic activity by the mental force and personality of the physician. Not alone in the biogenic psychoses is psychotherapy indicated, but in all cases are we dealing with a person and not just a heart, a leg or a stomach. Even in purely physical diseases such as inoperable cancer, psychotherapy can ease pain and promote comfort. Even in pneumonia, the balance between life and death may depend on the confidence you inspire in the patient. In the biogenic reactions, and especially in the milder reactions, the hysterias and neurasthenias (which only too often have received even unsympathetic consideration from may physicians) is there a wide field for psychotherapy.

It would take too long to discuss certain of the schools of psychotherapy, such as hypnosis, psychoanalysis, faith healing, etc., but every physician may use a practical psychotherapy. He can, first of all, endeavour to see that the will to be well is present and that there is mutual confidence between himself and the patient, that the patient believes in him and that he, the physician, has faith in himself. He can attempt to understand something of the situations which may have added to the patient's difficulties and why he has developed certain symptoms or reactions. He can use positive suggestion constantly to relieve symptoms, to inspire hope, to instill confidence. He can use those useful adjuncts to psychotherapy—medicines, physiotherapy, electrotherapy, hydrotherapy, where he thinks they will do no harm and may do good. He can use his powers of persuasion where the symptoms may be the result of ethical lapse or discouragement. He can quiet fear and other disturbed emotions by an analysis of the situation and by his own emotional stability.

I cannot close this paper without a few words on mental hygiene. The key note of modern general medicine is prevention. So it is in mental medicine. Psychiatric disorders are largely preventable and the severity of physical disorders can be modified by mental attitudes and habits.

The organic brain diseases are chiefly the arteriosclerotic and senile groups, the result of having lived too long or of having failed to take good care of one's arterial system due to overwork and other excesses, especially worry and alcohol. The alcoholic psychosis never occur in total abstainers. The toxic deliriums can be reduced by keeping the body clean, by clearing up focal infections, by prophylaxis against contagious diseases, by better maternal pre-natal care and above all by the periodic health examination which should detect and lead to the correction of early physical diseases which might later undermine one's mental vigor.

The biogenic reactions, due chiefly to constitutional inadequacies, emotional disharmony and environmental stresses, can be reduced by being well born of sound stock, by intelligent training during the formative years for the responsibilities of adulthood, and by an environment during these years which does no warp or cripple the developing child; by an economic environment which will do away with both booms and depressions and provide economic security and the opportunity for self respect and self achievement.

Mental deficiency is perhaps more the result of pre-natal, natal and infantile accidents and infections than was formerly thought, and the responsibility for deficiency due to these causes is largely in the hands of physicians caring for pregnant women and young infants. The mental deficiency caused by the union of mentally defective parents can only be prevented by the segregation or enforced sterilization of these defective patients.

In your difficulties of diagnosis or treatment, the Department of Health stands ready to extend whatever assistance you require through our Ontario Hospitals and our Mental Health Clinics.

A LAY MEDICAL DIRECTORY

Abdominal Section—The region below the navel.
Accommodation—A hotel room.
Ankylosis—Disease of the ankles.
Autointoxication—A drunken driver.
Bougie—Something to frighten children with.
Breech Presentation—A form of insult.
Cachexia—The noise of a chicken.
Catarrh—a musical instrument.
Chorea—A country near China.
Cloister—Where monks live.
Colon—The end of Panama.
Coma—Something like a period.
Comedo—Something dramatic.
Cornea—A hard growth on the knee.
Felon—Criminal.
Heroin—A brave woman.
Itch—German pronoun, first person singular.
Joints—Where you can buy liquor.
Mamma—The opposite pappa.
Parturition—A separation between others.
Presbyopia—A religion.
Prostate—Lying on the ground.
Prussic Acid—A German poison.
Pyelitis—Stomach ache from pastry.
Tampon—A fish.
Tartar—A Russian.
Tibia—What prize fighters get.
Urotropin—You're another!
Yaws—A way of saying yes.

—Nova Scotia Medical Bulletin.

Prescriptions and Prescribing--I.

By R. A. WAUD, M.D., M.Sc., PH.D.
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THE recent popularity of the barbiturates, together with the difficulty of covering their bitter, unpleasant taste in fluid preparations, has presented a problem to both the physician who writes prescriptions and to the one who does his own dispensing.

By experimentation it has been found that at least two vehicles are effective in disguising the unpleasant taste of these drugs—one is Syrupus Pruni Serotinae (Syrup of Wild Cherry) and the other is Saccharin. The former may be used as follows:

R Phenobarbitoni Solubilis		gr. XV
Syrupi Pruni Serotinae	q.s. ad	oz. jV

Misce. et Sig.—One teaspoonful three times a day in water.

To those who are unfamiliar with the 1932 edition of the British Pharmacopoeia, it might be mentioned that the official Latin name for sodium phenobarbital is phenobarbitonum solubile (soluble phenobarbitone); also that the official name of Syrup of Wild Cherry, which appeared in the B. P. of 1914 as syrupus pruni virginianae (choke-cherry) has been changed to indicate the species from which it is now made, that is, syrupus pruni serotinae (Wild Black Cherry).

In the case of saccharin, the following prescription may be employed:

℞ Phenobarbitoni Solubilis	gr. XV
Saccharini Solubilis	gr. j
Syrupi	oz. ij
Tincturae Cocci	dr. ij
Aquae q.s. ad.	oz. iv

Misce. et sig.—One teaspoonful in water three times a day.

Here the syrup takes care of the immediate unpleasant sensation, while the action of saccharin, starting later, overcomes and outlasts the bitter taste of the phenobarbitone. For those who do their own dispensing, the elixir of saccharin of the British Pharmaceutical Codex may be prepared and used in place of the powder or 1 grain tablet. It is made by adding 1 ounce (437.5 grains) of saccharin to a solution prepared by adding 2½ ounces of alcohol to 262.5 grains of sodium bicarbonate previously dissolved in 17½ ounces of water. About 2½ drachma of this solution of saccharin is sufficient for a four ounce bottle. In place of tincture of cochineal, two fluid drachma of a 2 percent solution of "cynene"* may be added. This gives a brilliant raspberry red color to the preparation.

COUGH MIXTURES

At this time of the year, the inclusion of a cough mixture may be in order. The following prescription will be found elegant and, at the same time, very efficient:

℞ Syrupi Pruni Serotinae	fl. oz. ij
Spiritius Chloroformi	fl. oz. ij
Ammonii chloridi	oz. ij
Mentholis	gr. ij
"Cynene" (2%)	fl. dr. ij
Syrupi Picis Liquidae	q.s. ad. oz. IV

Misce. et sig.—One teaspoonful four or five times a day.

Note.—Eight grains of codeine phosphate may be added to this preparation when the cough is excessive or troublesome at night.

The syrup of wild cherry has always been a popular vehicle for cough mixtures. It is an expectorant and at the same time it is an efficient flavoring agent. Chloroform, apart from its sweetening power, has a sedative action upon the sensory nerves in the larynx and bronchi. This relieves the tickling sensation in the back of the throat which is especially annoying when the patient lies down.

Since the ammonium in ammonium chloride is combined with a strong acid, this salt is quite stable as compared with ammonium carbonate which decomposes rapidly with the liberation of ammonia. In addition to its salt action in the mouth, the effect of ammonium chloride is due to the ammonium ion after its absorption, and not to reflex effects due to the liberation of ammonia in the stomach and intestine, as is the case when ammonium carbonate is given. Ammonium chloride has long been employed as an expectorant in the first and second stages of acute bronchitis in order to start secretion or to liquefy the thick tenacious mucus which may be already present. There is no expectorant that seems to work as well, particularly in the second stage as ammonium chloride. Although its action is thought to be like that of any other saline, ammonium chloride does not appear to be excreted into the bronchioles to any appreciable extent. In the liver, it is converted into urea and hydrochloric acid. The urea produces some diuresis and the acid tends to decrease the alkaline reserve of the body. But the possibility of the patient developing an acidosis is slight, except in individuals in whom there is impairment of kidney function.

Menthol, in addition to its sedative action on the sensory nerve endings, also has expectorant qualities. The dose of this drug might be increased to three grains in a four ounce bottle but more than this amount makes the preparation very disagreeable.

As indicated in the prescription, syrup of tar is official in the British Pharmaceutical Codex. There may be some difficulty, however, in obtaining it, since its preparation involves work, including the mixing of the pine tar with sand and magnesium carbonate with subsequent filtration. It may be necessary to substitute the syrup of tar with syrup of white pine or syrup of white pine with tar. Both these preparations are usually carried by the dispensing and manufacturing pharmacists. As the composition of these two preparations varies, depending upon their source, the formula of the preparation used should be checked to make sure that drugs already in the preparation are not present in sufficient quantities to make the total dose excessive.

*"Cynene" is a certified food coloring substance which may be obtained from W. G. Patrick & Co., Toronto.

Recent Advances in Obstetrics and Gynaecology*

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I PROPOSE firstly to deal with "The Recent Advances in Obstetrics," and to consider these under the following headings:

(a) Advances associated with pregnancy; (b) Advances associated with labor; (c) Advances associated with the puerperal period.

I will discuss the advances in gynaecology in the latter part of this paper.

THE ADVANCES ASSOCIATED WITH PREGNANCY

PRE-NATAL CARE: (1) Visits to the physician. This subject and its important bearing on the maternity patient has been so thoroughly and repeatedly brought to our attention that it really seems superfluous to even mention it in a paper entitled "Recent Advances in Obstetrics." However, there have been several very important advances made in the ante-partum care of the maternity patient. We request first of all that she should seek pre-natal care early, if possible during the second month. The first visit of the patient should include the following: (1) General history, and physical examination; (2) obstetrical history, past and present; (3) a special investigation of the pelvis (4) blood pressure, urine analysis, body weight and estimation of the haemoglobin. If the haemoglobin is under 60 percent, a complete blood examination should be made. At each subsequent visit, which should be every two weeks for the first eight months and once a week during the last month, the following points should be noted: weight, temperature, pulse rate, blood pressure, urine analysis, height of fundus, position of baby, and position and rate of the foetal heart. (2) Diet. During the first half of pregnancy the patient is given extra fluids and carbohydrates in an attempt to diminish nausea and vomiting. During the last half of pregnancy it is advisable to restrict table-salt to some degree and to somewhat decrease the intake of protein foods. The patient is permitted to have plenty of fruit and vegetables. The relationship between the intake of iodine and still-births has been called to our attention by Kemp. The results of this investigation seem quite decisive proof of the value of an adequate iodine intake for the expectant mother.

The relationship between an adequate supply of vitamins and normal pregnancy is fairly definite. Vitamin A seems to be essential in building up the mother's resistance against various infections. It

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seems almost imperative to add some form of cod-liver oil to the diet. The intake of Vitamin A during the first half of pregnancy is considerably below par due to the usual nausea and gastro-intestinal disturbances. Many patients cannot tolerate fat in any form and in such cases cod-liver oil concentrates may be used. Vitamin D is necessary for normal calcium metabolism. There is a decrease in the blood calcium during the latter half of pregnancy according to the investigation by Nicholas et al. This is in part due to the calcium requirement of the developing baby. Calcium deficiency may also have a bearing on the toxaemias of pregnancy. Also, a normal calcium content seems to have an influence on the onset of labour at the proper time. It is of vital importance, therefore, to maintain a fairly normal concentration of the blood calcium throughout pregnancy.

Vitamin E has something to do with the normal growth of embryonic tissue. Dr. E. M. Watson and myself are investigating the clinical value of wheat germ oil in cases of repeated spontaneous abortions. We are attempting to select cases in which there is no very evident reason for an abortion to occur and the results so far have been quite encouraging. Vogt-Moller reports 20 cases of habitual abortion, seventeen of which were carried to full term. He reports, also, two successful cases out of five of female sterility treated with wheat germ oil. Dr. Watson suggests that Vitamin E should be known as the anti-abortion vitamin rather than anti-sterility vitamin. The contention is that in a certain number of cases of abortion there is a dearth of Vitamin E resulting ultimately in the death of the embryo which is aborted.

Blood Pressure.—The blood pressure reading should be taken at each visit. An elevated systolic pressure is usually the earliest indication of an onsetting pre-eclamptic condition. The systolic reading is of more importance as an indication of a toxaemia than is the pulse pressure. A systolic blood pressure over 130 mm. of mercury should be considered abnormal unless it is known that there is some other explanation for the elevation.

Body Weight.—The following were the conclusions of weight-taking by Harding and Van Wyck:

1. Gains up to five pounds per month in pregnancy can be considered as normal. It will be rare to find toxaemias developing in this group.

2. Gains from five to eight pounds per month should be regarded with suspicion. Such patients should be placed on a salt-poor diet and their caloric intake restricted. They should be watched more closely than the strictly normal woman.

3. Gains of eight pounds and over per month indicate a potential toxaemia. The closest supervision should be exercised over such patients.

4. The gains in weight have preceded the more usual signs of toxaemia, *i.e.*, albuminuria, oedema, hyperpiesis.

5. If we can prevent or control water retention the toxic process may be averted.

6. The small number of toxaemias in this series (about 1 percent) justifies the practice of weight-taking in pre-natal care. Although definite signs of toxaemia developed in a few patients, none exhibited convulsions. The maternal mortality was zero.

I have been using this method as a guidance of prenatal care over a period of some years. The average gain of my private patients during the first eight months was three and one-half pounds per month. A patient with an onsetting pre-eclampsia would show an abnormal gain in weight, the most striking example of this being a primiparous patient within three weeks of full term who made a gain of nine and three-quarter pounds in two weeks. The blood pressure was 148/90 and the urine showed a four-plus test for albumin. The toxaemia was controlled and a medical induction was carried out one week before full term.

Haemoglobin estimation.—This should be done monthly at least. According to Witts, womankind usually shows a haemoglobin value below normal between the ages of puberty and the menopause. Since the appearance of his observations I have been conducting routine haemoglobin estimations on all my private patients and find that over 50 percent require treatment. The usual treatment is massive doses of iron up to 100 grains a day, the usual dose being 70 to 80 grains. The average time required to raise the haemoglobin 20 percent was five to six weeks. The prescriptions used are as follows:

Rx. 1—

Ferri et Ammonii Citratis	dr. LX
Glycerini	dr. I.
Elixir Lactatis Pepsini	oz. I.
Aquae q.s. ad.	oz. VIII.
Fiat mistura.	

Sig.—Take two teaspoons in water after meals and at bedtime.

Rx. 2—

Pilulae Ferri Carbonatis	gr. X.
Pone in capsules et mitte tales doses	XX.

Sig.—Take one capsule three times a day, after meals.

Fullerton working under Professor L. S. P. Davidson at the University of Aberdeen has shown conclusively that ferrous sulphate grains, nine per day, will give equally as good results as the massive doses of iron and ammonium citrate. It is more convenient for the patient and has the advantage of not discolouring the tongue and mouth.

Dr. H. A. Cave is conducting an investigation of the anaemias associated with pregnancy in our maternity clinic. I believe that a maternity patient whose haemoglobin is considerably below normal is much more likely to present complications during pregnancy, labour, and the puerperal period. It has been shown that there is a definite relationship between low haemoglobin and the toxaemias of pregnancy, abortion, miscarriage, puerperal sepsis and still-birth. A child born under such condition is handicapped during birth because of anoxaemia. The degree of anoxaemia will vary with the severity of the microcytic anaemia.

Presentation of the baby.—Accurate determination of the presentation of the child is necessary during the last four weeks of pregnancy. Breech presentations should be then converted into vertex presentations by means of external version whenever possible. Some occipito posterior positions can be corrected before labour by the application of a padded binder. The pad used for the purpose is a folded towel, placed between the anterior superior spine of the ilium and the baby's shoulder. The presenting part should become engaged in the pelvis about one month before term in primiparous patients. In about 19.5 percent of such women the presenting part does not engage firmly before the onset of labour and this failure of engagement should stimulate the obstetrician to ascertain the reason. Then an attempt should be made to determine the relationship of the baby's head to the mother's pelvis by the Munro Kerr method. Accurate pelvic measurements, external and internal, are essential for each maternity patient before the end of the eighth month.

SEX DETERMINATION.—Work on this subject has been carried out in various centres during the past few years. A recent investigation disclosed that the microscopic determination gave a correct diagnosis of sex in 84 percent of the cases.

THE COMPLICATIONS OF PREGNANCY.—The toxaemias constitute the most common complications that occur during pregnancy. These include vomiting, pre-eclamptic toxaemia, eclampsia, nephritic toxaemia, and low-reserve kidney. Adequate prenatal care has decreased noticeably the number of toxic complications. However, it will remain very difficult to treat satisfactorily the toxaemias of pregnancy until their exact aetiology has been worked out. Numerous theories have been advanced and almost as many methods of treatment have been tried. I purpose, therefore, to crystallize some of the more promising remarks which have been handed down to us during the last few years on this subject.

The aetiology of severe vomiting of pregnancy is unknown. The indications that the vomiting is definitely toxic are: (a) Persistent vomiting; (b) Oliguria and the presence of urobilinuria; (c) Persistent elevation of the pulse rate, and (d) Loss of body weight.

The treatment consists in isolating the patient and restricting visitors; in restoring the fluid loss and in feeding the patient intravenously, either by the constant or the intermittent method. Glucose solution, 2,000 cc. of a 10 percent solution, and blood transfusions are used for the purpose. Colonic irrigations are given daily. Sedatives are prescribed if necessary. The vast majority of cases will respond to this treatment but four or five days' trial is required before one is in a position to decide whether or not the patient is improving. We have not found it necessary to do a therapeutic abortion for pernicious vomiting in our clinic during the past six years.

Pre-eclampsia is the most common complication of pregnancy during the last three months. It is evidenced by: (a) An abnormal gain in body weight (5 to 8 lbs. per month); (b) Elevation of the systolic blood pressure; (c) Albuminuria; and (d) Swelling of the hands and feet.

The most satisfactory treatment for this type of case seems to be as follows: (a) Keep patient in bed until the symptoms subside; (b) Restrict the intake of sodium chloride considerably and of proteins slightly; (c) Administer strong alkaline solution by mouth, *e.g.*, potassium citrate gr. 40, sodium bicarbonate gr. 20, calcium sodium lactate gr. 7½; (d) Give magnesium sulphate as a laxative daily.

Since using this alkaline treatment, I have been able to control the pre-eclamptic patients much more quickly. The use of alkalies is rather ancient, but it has been reviewed recently thoroughly by Daly.

Eclampsia continues to occur in maternity cases but not nearly as frequently as some years ago. This is no doubt due to the better prenatal care of the mothers. Clinically, eclampsia may be classified as acute and chronic. The acute form occurs suddenly without many prodromal signs and symptoms. Seventy percent occur in primiparous women. The chronic form comes on more gradually with characteristic prodromal manifestations. Seventy percent of this class occur in multiparous women. The prognosis of the acute type is much more serious than that of the chronic form. In general, the treatment of the two types is similar. Eclampsia is called "the disease of theories," and for some time it might have been called "the disease of variegated treatment." Even, although we have not yet settled the aetiology of eclampsia, we are rather more unanimous concerning its treatment. Some modification of the Stroganoff method is the procedure which is most commonly used at present. Caesarean section is now used only in the treatment of eclampsia where there is some other definite obstetrical reason for doing it. Caesarean section is therefore not used as a part of the treatment for eclampsia.

The aims in treating the eclamptic patient are: (a) to produce absolute rest and quietness; (b) to eliminate water and toxins; (c) to assist in delivery by the gentlest means possible.

The modification of the Stroganoff method which I personally like is: (1) absolute rest in a quiet, darkened room; (2) morphine gr. ¼, with magnesium sulphate 2 cc., in a 50 percent solution, given as often as required to control convulsions and restlessness. If necessary, this may be given until the respirations are down to 10 or 12 per minute. If morphine does not control restlessness or convulsions, 2 cc. of paraldehyde solution intravenously always assures the patient of rest for some hours; (3) free sweating with dry heat, one hour out of three; (4) 500 to 1000 cc. of blood are withdrawn and Daly's alkaline solution is given intravenously. Part of the withdrawn blood is sent to the laboratory for blood chemistry estimation; (5) 50 cc. a 25 percent solution of glucose is given intravenously four hours later; (6) an inlying catheter is inserted instead of repeated catheterizations; (7) enemas and stomach lavages are not used during the acute stage of eclampsia; (8) at the end of 10 or 12 hours' labor is initiated by means of a hydrostatic bag, if the patient's condition has not improved; (9) during labour, delivery under gas-oxygen anaesthesia is assisted by means of low forceps.

With reference to nephritic toxaemia there have been no particular advances except that some nephritic patients may be guided through a pregnancy without danger to life, providing the kidney function has been thoroughly studied periodically before and during pregnancy.

Low-reserve Kidney.—This is debatable condition but it is generally conceded, and I believe there is such a kidney. The renal threshold is low and the strain of pregnancy is usually sufficient to cause albumin and some elevation of blood pressure and oedema. These patients require more than ordinary prenatal care. They require extra rest and a special diet. The babies may come rather prematurely, but many more viable babies would be obtained from this class of patient, if we recognized the low reserve of the kidney and put the patient on exceptional supervision early in pregnancy.

Placenta previa is a complication of pregnancy that requires careful management. The advancements made within recent years are: (a) the diagnosis of placenta previa by X-ray. The use of X-ray in diagnosing placenta previa has been quite thoroughly described by Professor Munro Kerr of Glasgow. The technique is reasonably simple and the results fairly satisfactory; (b) the general feeling is that wherever possible the best results are obtanied by adopting the low-flap Caesarean section for the method of delivery.

THE ADVANCES ASSOCIATED WITH LABOUR

These are fairly noteworthy.

(1) Analgesia.—This field has been fairly well covered, but unfortunately as yet we have no perfectly satisfactory analgesic for the first stage of labour. I mean by this that we have at present no drug

or combination of drugs that will entirely relieve the pain of labour and at the same time be perfectly safe for mother and baby. There are two groups of drugs that are extensively used for this purpose, namely the sedatives and the hypnotics. Some workers use one or other of these groups, while others attempt to combine the two. The sedative group constitutes such drugs as morphine, pantopon and heroin. The hypnotic group includes the bromides, chloral hydrate and the barbiturates. The barbiturates constitute a large group of drugs which have recently been placed on the market. It seems that a new barbiturate is produced about once a month. The original barbituric acid has been modified by each of the various firms in order to have a distinctive product. There are now about 35 recognized barbiturate preparations on the market. Before this paper is published there will probably be a few others added to the list. It seems that we cannot expect to rely upon the barbiturates alone to give us a satisfactory obstetrical analgesic.

(2) Mechanical Delivery.—Forceps in obstetrics are not playing as great a part today as they were some years ago. This is due in part to the efforts put forth by the various teaching centres in emphasizing the eminent dangers to both baby and mother when forceps are used. Fifty-one percent of the live-born babies that die within the first week after birth are found to die from cerebral haemorrhage. The most common cause of cerebral haemorrhage is a forceps delivery or a breech extraction. I clain, therefore, that an advancement has been made in this respect.

Caesarean section has become more commonly used in certain districts during the past few years. There is no doubt that it is resorted to at times unnecessarily. However, of recent years considerable progress has been made in placing this operation in its proper place. This is particularly true since the introduction of the low-flap operation. This permits one to make use of Caesarean section in many cases where the classical section would be contra-indicated. I have found the low cervical operation so much more satisfactory in every way that I have adopted it as a routine when Caesarean section is required.

(3) Resuscitation of the New-Born.—Graham and Tew have pointed out that one of the most common causes of death of the new-born is anoxaemia. The baby's heart may be beating reasonably well or feebly, and yet it fails to breathe. The proper use of the insufflator with a mixture of 90 percent oxygen with 10 percent carbon dioxide will nearly always initiate normal respirations. In marked cases of respiratory failure a mixture of oxygen with as much as 30 percent carbon dioxide may be used. I have found this method much safer and more certain than any other and I feel that the two most important points in resuscitating the new-born baby are to remove the mucus

from the mouth and air passages, followed by insufflation of the lungs with a mixture of oxygen and carbon dioxide.

ADVANCES ASSOCIATED WITH THE PUERPERAL PERIOD

(1) Nursing Difficulties.—One of the common nursing difficulties is that the mother is unable to nurse her baby satisfactorily. It seems that better results are obtained if the baby is permitted to nurse from both breasts but in not more than three minutes from each every eight hours for the first 24 hours. Then allow the baby to nurse four or five minutes from each breast for the next 24 hours. When the quantity is insufficient, the baby should be allowed to continue to nurse from each breast at each nursing. Macomber has recently shown that mothers on a low-protein diet do not nurse their babies as well as those on an adequate supply of protein. I think that we can safely add considerably more protein to the mother's diet during the nursing period, and also during pregnancy.

(2) Puerperal Sepsis.—Puerperal sepsis includes adequate prenatal management, a scientific delivery and scientific post-partum care. If the temperature rises to 101° or over at any time during the puerperal period, particularly during the first week, proper steps should be taken at once to make sure of the diagnosis. Such a patient should have cultures taken from the cervix at once in order to ascertain the type of organism present. This, of course, applies to the case in which some other obvious cause for the elevation of temperature is not present. If the organism is a haemolytic streptococcus, the patient should be given early and adequate treatment. I believe at the present time that we have no better means at our disposal than saturating the patient with scarlet-fever antitoxin and giving her moderate or small repeated blood transfusions. In severe cases, the scarlet-fever antitoxin may be given in 30 to 40 cc. doses intravenously. In moderate cases it may be given in 60 to 90 cc. doses intramuscularly. The blood transfusions would be given in 200 to 500 cc. amounts daily if necessary. A daily estimation of the haemoglobin is done as a guide for the blood transfusions. In cases where an increase in the drainage of lochia is necessary, glycerine and carbolic acid in the proportion of 16 of glycerine to one of carbolic acid is used. Some form of vitamin A concentrate, *e.g.*, radiostolium, is given in large doses.

THE ADVANCES IN GYNAECOLOGY

(a) Menstrual Disturbances.—The work carried out in recent years and the work going on at present in the field of endocrinology is tremendous. The number of articles appearing in the literature is rapidly increasing. From this volume of work a certain number of scientific facts is filtering through. Clinically, we have already glandular substances which produce results. Within the next few years we may be hopeful that many more of the unsolved problems relating to

the endocrine glands will be unravelled. I propose to touch briefly on the clinical aspects of the subject.

(1) AMENORRHOEA.—Whether this be primary or secondary, it may be due to a disturbance of the endocrine glands. When all other possible causes are ruled out, we usually assume that the underlying cause is a disturbance in endocrine function. The glands most likely concerned are the pituitary, ovary, and thyroid. The basal metabolic rate should be taken at the outset. If the B. M. R. is out more than 25, definite assistance may be expected from thyroid therapy and may be justly used along with the other treatment. The most satisfactory product for stimulating menstruation that I have used is "Oestroform," made by the British Drug Hoses. Each cc. contains about 1000 rat units. A more recent product of the same firm contains 10,000 international rat units per cc. The estimated dose required is 400,000 rat units.

(2) DYSMENORRHOEA.—When no obvious cause is present, the alkaline treatment seems to give very good results. The treatment is commenced about two or three days before the period starts and is continued for about half of the time of the period. Sufficient alkali is given to keep the urine alkaline. At present, I am using potassium citrate gr. 40, sodium bicarbonate gr. 20, and calcium lactate gr. 7. In other cases, dilatation of the cervix up to a No. 10 Heger, with a tight packing of the uterine cavity and cervix with sterile gauze seems very satisfactory, the gauze being left in for about four or five days.

(3) STERILITY.—In about 25 percent of the cases of sterility the cause is due to some fault on the part of the husband. I, personally, make it a routine to check the husband in all cases of sterility where I am unable to find an evident cause in the female. Insufflation of the Fallopian Tubes with air or lipiodol is a satisfactory method of checking the patency of the tubes. In certain cases the vaginal secretion is strongly acid. An alkaline douche taken at bedtime may permit the spermatozoa to live long enough to gain entrance into the cervical canal.

(b) The Treatment of Prolapse.—The term prolapse in gynaecology usually has reference to descent of the uterus. This, however, is usually accompanied with some degree of prolapse of the anterior and posterior vaginal walls. The prophylactic treatment includes first of all scientific obstetrical work. The most exaggerated degrees of prolapse are found in women who have had mechanical deliveries. A plea is made here again to refrain from mechanical obstetrics so far as possible. The use of a proper fitting pessary during the late puerperal period will often avoid future descent of the uterus and vaginal walls. The surgical management of prolapse of the uterus and vaginal walls varies in different centres. I find that the majority of these cases may be dealt with entirely by means of the vaginal route. The Fothergill

or a modification of the Fothergill operation gives excellent end-results.

(c) The Treatment of Cancer of the Cervix.—In reasonably early cases the most satisfactory end-results are obtained from adequate surgical treatment, supplemented with radium and X-rays. In moderately advanced cases, surgery is seldom if ever used. We depend upon radium and X-ray therapy. In markedly advanced cases we do the best we can for the patient in an attempt to make her comfortable for her remaining days.

We are still unanimous in at least one important point concerning cancer, namely, that the patient's best and likely only hope for cure is an early diagnosis. Most of us believe today that heredity is playing a part. With these two facts before us, a small group of men in London are at present attempting to get the necessary parties interested in the establishment of a Cancer Bureau of Statistics. This bureau should preferably be so situated that it would be accessible for information to every Cancer Clinic in the world. This would lead to the special guidance and observations necessary to detect the early appearance of the disease.

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Abstracts

USE OF CONVALESCENT BLOOD IN WHOOPING COUGH

WILLIAM L. BRADFORD

Amer. J. of Diseases of Children, 50: 918, 1935.

So far this type of treatment has yielded best results in diseases caused by viruses. The favourable results obtained by treating whooping cough by this method add some support to the proposed theory that in this disease there may exist a combination of virus and bacteria.

Fifty-eight children, mostly under three years, were injected during either the incubation period or catarrhal stage. Serum was obtained from eighth week convalescents, preserved in 25 per cent cresol and never used later than three months after obtained. Blood was obtained from one parent with a past history of whooping cough. About half of the children were injected with 10 cc. of the serum whereas the other half were injected intramuscularly with 10-20 cc. of the whole blood.

Out of forty-four in families where a case of whoping cough existed the following results were obtained:

Twenty-seven were treated during the incubation period. Twelve were protected. Ten had a mild form. Five had an average attack. One complication of tonsilitis resulted.

Twenty children used as controls contracted the disease. Eight had a mild form, eight had an average form, four severe and four developed complications.

Seventeen were injected during the catarrhal stage and showed no signs of being benefited by the treatment.

A review of the history from 1917 to 1934 presented in the article would lead us to conclude that in practically every instance treatment during the incubation period is decidedly beneficial, slightly beneficial during the catarrhal stage and useless after the disease has reached its height.

TREATMENT OF FRACTURED SKULLS

CHAS. O. BATES

Am. Jour. of Surgery, 30: 66, 1935

Trauma, next to heart disease, causes a greater mortality and morbidity than any other cause. Fractures of the skull are a very common occurrence, about half of which occur as a result of automobile accidents. The author prefers to look on a fractured skull not as a fractured bone; but to find just how much damage that trauma has produced in the brain and its blood vessels.

The first and most important treatment is rest with no unnecessary moving of the patient or taking X-rays. The primary consideration is to preserve life.

There should be a clinical bedside study of the patient for the first five or six hours to observe and diagnose the degree of intracranial pressure. Intracranial pressure may be due to hemorrhage or oedema and it may be compensated for to any degree. The degree of compensation is judged by the following:

1. State of consciousness of the patient.
2. Restlessness of the patient.
3. Rate and quality of the pulse—pulse will remain slow and regular as long as intracranial pressure is compensated.
4. Respiration remains slow and regular as long as there is compensation.
5. Change in temperature—when the temperature remains below 102° F. the pressure is being compensated.

With regard to treatment, the author advises the following:

1. Do not use lumbar puncture too often or too frequently.
2. Intravenous injection of 50 cc. of 50% glucose at intervals both relieves pressure and gives nutrition.
3. Rest alone is the greatest measure.
4. The patient should be carefully watched as changes appear quickly and the time for favourable action is short.

The treatment of the fractured bone should be secondary to treatment of the brain and patient as a whole. The simple depressed fracture should wait several days before operation.

—ADELARD TROTTIER, '37.

THE EXAMINATION OF THE GYNAECOLOGICAL PATIENT

H. B. ATLEE

Can. Med. Assoc. J.: 32, 516, 1935

The examination of the gynaecological patient consists of (a) abdominal, (b) vaginal and (c) rectal investigations.

(a) *The abdominal examination consists of:*

1. *Inspection*—Does the abdomen move with respiration? If the abdomen is distended, suspect pregnancy, fibroid, ovarian cyst, free fluid, or tumor.

2. *Palpation* — Kidney tenderness should be ruled out first. Occassionally a patient with low abdominal pain will be tender in the right hypochondriac region. If so, suspect salpingitis and ectopic gestation.

If a tumor is present, one should determine whether it is pelvic or not. If the fingers cannot be dipped under the tumor just above the pubes, it is probably pelvic.

3. *Percussion*—Tumor dullness can be elicited if not too small.

An ovarian cyst will yield a thrill quite frequently.

4. *Ausculation*—This will rule out the presence of a foetal heart beat.

(b) *The vaginal examination consists of*: digital, bimanual and speculum investigation.

The digital examination should be done with preferably two fingers in the vagina and a planned procedure should be carried out. The condition of the cervix should be ascertained. If there is pain on touching the cervix, suspect a pelvic infection. If there is pain in the cervix with yellow pus from the urethra, the diagnosis is almost certainly salpingites; if the pain is associated with dark red vaginal bleeding, the diagnosis is almost certainly ectopic gestation.

The fornices are next examined and any swellings noted.

Before commencing with the bimanual, see that the bladder is empty. Normally the uterus can be grasped between the vaginal fingers and the abdominal fingers. Examine *anterior to the uterus* for a tender bladder, and cervical fibroid; *laterally*—pelvic cellutis, a tender ureter, an extension of carcinoma of the cervix; *postero-laterally*—swollen tube, on left side a mass in the sigmoid; on the right a mass of a pelvic appendicitis; *posteriorly*—ovarian tumor, a retroverted uterus, appendicutar abscess, and pelvic haematocoele.

The speculum mostly used is the Grave's modification of the bivalve. With it the cervix is grasped and viewed —bleeding, discharges, and erosions should be noted.

(c) *The rectal examination* is always done where a vaginal is impossible. The same planned procedure should be carried out as with the vaginal route.

The author concludes by urging the practitioner and student to learn as many normal pelves as possible. All women with gynaecological symptoms should be examined and in that way the abnormalities will be mastered.

I. W. MANN, Meds, '37.

THE TREATMENT OF PROSTATIC OBSTRUCTION

G. G. SMITH

Can. Med. Assoc. Journ., 33: 262, 1935.

The author points out that the patient with prostatic obstruction is diagnosed much earlier in the course of the disease today than 20 years ago. Now the residual urine is 1 to 2 oz. whereas the patients used to have over-distended bladders.

In preparing the patient, he suggests that a rectal and cystoscopic examination of the prostate be carried out, that the kidney function be examined by the N. P. N. estimation of the blood and Rowntree's phthalein test, that the cardio-vascular system be checked carefully and that pre-operative drainage be established. In about 50 percent of the cases, drainage can be carried out by catheter. Some need no drainage while others need cystotomy. The residual urine and the degree of infection determine this. Fluids should be forced to the extent of 3000 to 4500 cc. daily. This is administered by mouth or by hypodermolysis or by intravenous route. The latter is preferable if the vascular system does not become embarrassed. The author recommends vasectomy to prevent epididymitis.

In choosing an anaesthetic he prefers smaller amounts of novocain (60 mg) in spinal anaesthesia or well given ether anaesthesia. Sudden falls in blood pres-

sure are to be avoided. Although his experience with transurethral prostectomy is limited, Dr. Smith feels it should be reserved for certain carcinomata, the small fibrous prostate, certain small middle lobe enlargements and early benign hypertrophies. As to the relative value of perineal and suprapublic operations, he believes it depends upon the ability of the operator to employ either one. The suprapubic has fewer pitfalls.

D. R. WEYLIE, '36.

SOME REMARKS ON THE GIANT-CELL TUMOUR OF BONE

HARRY PLATT

Surg. Gyne. and Obst., 60: 2A; 318, 1935.

The author considers the tumour, known under the various titles of giant-cell tumour, myeloid sarcoma, or osteoclastoma, to be a clinical enigma to the practical surgeon. The three main reasons for this incertitude are: (1) the tumour can no longer be regarded as a histological entity; (2) the tumour is rare and its clinical behaviour variable; and (3) there seems to be some tendency to substitute irradiation for surgical treatment.

There is obvious difficulty in differentiating the true giant-cell tumour from the osteitis fibrosa group of lesions. The main points of differentiation between the solitary bone cyst and the giant-cell tumour are age, site of origin and clinical course. The solitary cyst occurs under 20 years of age, originates in the metaphysis and runs a course of trauma, fracture, spontaneous healing. The giant-cell tumour, on the other hand, occurs after 20 years of age, originates in the epiphysis and runs a clinical course of pain, tumour, invasion and destruction.

The author feels, however, that not too much significance should be attached to the histological relationship or kinship between the solitary bone cyst and the giant-cell tumour; the chief objection is that such an argument leads to error in diagnosis and more particularly to delay and indecision in treatment.

Under the discussion of the clinical attributes of giant-cell tumours the author points out that three distinct clinical types can be recognized: (1) the indolent, slowly growing tumour; (2) the active, rapidly growing tumour; and (3) the rare, malignant tumour. The most striking fact about each and all of these types is their undoubted rarity.

(a) The indolent tumour grows very slowly, is feebly invasive and destructive. The roentgenographic picture of a thick wall and coarse trabeculations, and the histological picture of fibrosis are characteristic. A significant fact is that they are all found in individuals under 30 years of age.

(b) The active tumour shows well-marked invasive and destructive qualities. It presents the most typical clinical picture. The tumour grows rapidly, has an attenuated bony shell which may be perforated at one or more points: the microscopic picture is characterized by a profusion of giant-cells embedded in a background of actively growing cells. The author refers to this tumour as "malicious" rather than malignant. In a case report of one of these tumours, it is stressed that there is a striking tendency for these tumours to recur after treatment.

(c) The malignant giant-cell tumour occurs between the ages of 30 and 40, and recurs locally after curettage or even local resection. E. S. J. King has described the histological and roentgenographic criteria on which a diagnosis of malignancy may be made in atypical giant-cell tumours. They are: (1) a predominating spindle-cell stroma, with mitosis and tumour giant-cells in addition to the typical benign giant-cell areas; (2) a loss of outline of the bony shell, irregular trabeculations and the shadow of tumour material in the soft parts.

In the treatment of these tumours the aims should be complete eradication of the tumour with the minimum amount of mutilation. The various surgical procedures available are curettage, local excision and amputation. The operation best suited to the individual case will depend on the type of lesion and the status of the patient. Primary irradiation is only justified in flat bones, such as the ilium, where surgical measures are both difficult and of doubtful value. The author feels that a deliberate choice of irradiation as a primary measure in tumours of long bones is a hazardous experiment.

F. BURNS ROTH, '36.

CONTUSED INJURIES OF PERIPHERAL NERVES—THE VALUE OF EARLY SURGICAL TREATMENT

By H. A. BROWN

Calif. and West. Med., 41: 166, 1934. (Sept.) 1934.

Difficulties arise in treatment of peripheral nerve injuries resulting in partial paralysis of muscles, incomplete sensory loss in absence of laceration when one is not certain that spontaneous recovery will occur. Muscle atrophy, joint stiffness, and trophic changes are seen—the longer the interval between trauma and beginning regeneration the less satisfactory is the final result.

This paper discusses a series of cases with physiological disturbance of function of peripheral nerves without loss of anatomical continuity resulting from various sources such as fracture, pressure of a cast, tourniquets, tight bandaging, manipulation, etc. Essentials of typical case histories are given, and the first recorded improvements in function after operation are tabulated. Of these 70 per cent showed improvement in 1 - 10 days. All the cases of the series are summarized under the headings (a) Type of trauma, (b) Nerve affected and degree of involvement, (c) Interval trauma to operation, (d) First recorded improvement P.O., (e) Ultimate recorded improvement P.O.

The differentiation between physiological interruptions and anatomic severance is usually possible from a consideration of the history and the type of injury, but if the lesion is complete no examination is infallible.

Treatment advocated by the majority has been continued observation with proper support of involved muscles, passive exercise, massage or electrical stimulation from 4 - 6 months with careful interim examinations. During this period various degrees of degeneration occur in the nerve fibres peripheral to the injury, involved muscles may become atrophic, trophic changes may occur in anaesthetic areas, and stiffness of joints and vasomotor changes appear.

The underlying pathological factors in the cases include intraneural scarring between nerve bundles sufficient to abolish or hinder passage of impulses, and scar tissue of various degrees of density was found in the tissues about the nerve. At operation constrictions were removed and the nerve replaced in a bed free from constriction and scar tissue. The technical procedure included dissecting away scar tissue by sharp dissection if possible, neurolysis by injecting the nerve above and below the lesion with Ringer's solution, free intrinsic scar tissue by ballooning the nerve with Ringer's, and dissecting fibrous bands by careful incisions paralleling the fibres. Hospitalization of only 2 - 7 days was the rule, prolonged immobilization was unnecessary, while risk and discomfort was negligible.

SUMMARY

(1) Certain types of injury to peripheral nerves produce physiological interruption of nerve pathways with loss of function.

(2) In most cases neurolysis is followed by early and continuous return of function.

(3) Early operation shortens the period of disability and lessens permanent change that may result from muscle atrophy and joint stiffness.

Points brought out in the discussion includes:

(1) Value of pneumatic tourniquet, and danger of Esmarch bandage.

(2) Early operation would relieve painful hyperaesthesias.

(3) Of these cases, 38 per cent were potential medicolegal problems.

(4) Fat is quickly absorbed, and adjacent muscle or subcutaneous tissue forms a better bed for the transplanted nerve.

—C. L. SCOTT, A.B.

THE CLINICAL DIAGNOSIS OF ARTERIOSCLEROSIS AND HYPERTENSION

By DUNCAN GRAHAM

Canad. M. A. J., 32: 29, 1935.

Owing to increasing mortality from heart disease, which is a result of disease of the coronary arteries, due to arteriosclerosis or hyptersion or both, the author attempts to point out the important features in the clinical diagnosis of arteriosclerosis and hypertension.

Arteriosclerosis should not be regarded clinically as a generalized process as its effects are more localized; the signs being manifest by one or more systems of the body and are the result of nutritional defects in one or more systems. This is emphasized by the fact

that these symptoms are more manifest after periods of exercise when increased nutrition has been necessary.

Briefly reviewing pathology, he says that arteriosclerosis, although affecting the whole arterial system, produces different lesions in different parts, depending upon the size of the vessels. In the aorta the primary change is intimal with medial degeneration following. In the medium sized arteries the primary change is in the media with intimal changes later; in these there is no obstruction to the flow of blood.

In smaller musclar arteries intimal thickening results in partial occlusion and progressive nutritional changes in the tissues supplied. These may be intermittent claudication of calves of legs with exercise, change in color and temperature of hands and feet, and finally gangrene.

Sclerosis or arteriolar branches in kidney leads to atrophy but seldom severe enough to produce renal insufficiency.

In coronary arteries the primary lesion is intimal thickening of a nodular character causing partial occlusion. If generalized the result is chronic degenerative myocarditis, and if only one branch is coronary thrombosis, or infarction.

In the cerebrum the intimal thickening results in progressive impairment ment of cerebral function of various degrees of severity.

Regarding hypertension he says that raised blood pressure with no arteriosclerosis is the result of increased tonicity of the arterioles. The diastolic pressure becomes persistently high, indicating increased tonicity of arteriolar walls. No pathological changes are found early but later hypertrophy of muscle coats occurs but there is no medial degeneration. This is followed by intimal thickening and obliteration of the lumen. A useful guide is that if the systolic pressure is 160 or over there is a hypertension, and if the diastolic is less than 100 then arteriosclerosis, hyperthyroidism or aortic regurgitation are suspected; if over 100 essential hypertension, bilateral kidney disease with renal insufficiency brain tumor, or rare cases of suprarenal tumor.

In essential hypertension there are functional disturbances of the heart, brain, eye, less often the kidney occurring in the fifth decade followed by death in the sixth. Hypertrophy of the left ventricle is found in cardiac insufficiency presenting symptoms from palpitation and dyspnoea on exertion to angina pectoris.

Cerebral signs are those of malnutrition of the cortex; the symptoms depending upon whatever area is rendered ischaemic. Ophthalmoscopy reveals early signs and should be used routinely. The differentiation from chronic glomerulonephritis is important and the decision is based on the tenets of renal efficiency, the most valuable being the specific gravity volume test. Hypertension as a result of chronic glomerulonephritis usually occurs before forty; essential hypertension more often occurs later.

—H. A. WASHBURN, '36.

INJURIES TO THE VERTEBRAE AND INTERVERTEBRAL DISKS FOLLOWING LUMBAR PUNCTURES

CHARLES N. PEASE

Am. J. of Dis. of Child., 49: 849, 1935. April, 1935.

The introduction of the needle beyond the neural canal has been the chief agent in the production of the pathologic changes to be described. A series of twelve cases showed a thinning of the intervertebral disks and a definite sclerosis of the vertebral bodies, the results of loss of material from the nucleus of the intervertebral disk and of irritation of the bone respectively. Five of these 12 cases occurred following the withdrawal of fluid for diagnosis; 5 occurred following intraspinal administrations of antimeningococcic serum; 1 occurred following an encephalogram, and 1 following the administration of a spinal anaesthesia.

The possible terminations of the needle when pushed through the neural canal were found to be: (1) intervertebral disk, (2) a vertebra, (3) interarticular facets, (4) venous sinusoids in the vertebral body.

The intervertebral disk is injured when the body is flexed and the needle is pushed beyond the neural canal. The vertebral body and venous sinusoids are injured when the body is not flexed. If the needle is not sagitally introduced, it is possible to strike the facets.

The needle may carry in organisms which set up a localized infectious process.

The onset of the symptoms varied from an immediate appearance to a period of 2 weeks. The chief complaint was pain in the lower part of the back, localized at the site of puncture. Limitation of movement of lumbar spine and weakness of muscles were also reported.

Examination showed a weakness of muscles, loss of normal lumbar lordosis. Roentgen findings varied from a lumbar scoliosis, in the mildest case, to a thinning out of the intervertebral disk between the 3rd and 4th; or 4th and 5th lumbar vertebrae, to complete destruction of the disk, with typical findings of osteomyelitis of adjacent vertebrae.

In the mild cases, the treatment was rest in bed. However, most cases required rest in hyperextension on a Bradford frame, followed by wearing of a plaster jacket or a Taylor brace. A lumbosacral fusion was resorted to in one case.

—MARY WONG, '37.

TRACHEOTOMY FOR OBSTRUCTION IN MALIGNANCY OF UPPER AIRWAYS

ABRAHAM LIEFF

Amer. J. of Surg., 30: 1935

Purpose: to enable patient to breathe, avoiding slow asphyxiation.

Location: a low tracheotomy is best.

Steps in Operation:

1. Position of patient.
2. Preparation of operative field.
3. Anaesthesia.
4. Skin incision.
5. Dissection of superficial fascia, muscles and pretracheal fascia.
6. Exposure of trachea.
7. Incision of tracheal ring.
8. Introduction of tracheotomy tube into trachea.
9. Closure of wound.

(1) Posture of patient is important. It has two objectives, viz.—sandbag under shoulders,—trachea is thrust forward—a good exposure, a lazy approach.

(2) Prepared by painting from chin to one inch below sternal notch; I_2 and alcohol. N.B.—It is essentisal that trachea and surrounding structures maintain normal position. Patient then draped and anterior neck only exposed.

(3) One-half of one per cent novocaine infiltration of skin, begin at sternal notch in midline, continue up to notch of thyroid cartilage.

(4) Length varies with type of neck. Aim to secure adequate exposure of trachea—usually two inches—from cricoid to sternal notch, exposing superficial fascia.

(5) Cut through and retract laterally, exposing pretracheal fascia, then cut through it and retract laterally.

(6) Count rings from cricoid down. Incise at fourth ring. Tracheal hook is passed below and to the right and the ring lifted forward, ready for incision.

(7) Incise in midline.

(8) Opening quickly dilated by means of a Trausseau dilator. It is indispensible to have a suction apparatus ready for use—especially if an excessive amount of bleeding occurs.

Introduce a tracheotomy tube size 6, with a pilot into lumen—introduced through the dilator. Pilot and dilator are then withdrawn. Tie tube into place with lumen tape.

(9) Place small strip of iodoform gauze in wound, no suture needed.

First dressing an operating tube—pad of gauze 4 x 4 moistened in weak antiseptic solution of boric acid or saline, pass under tracheotomy holder in form of a collar.

Keep patient quietly in bed. Inner tube should be changed every half hour or oftener during first few days if amount of secretion is excessive. Outer tube, once every 24 hours by a doctor.

Frequent dressings should be applied, and careful care is necessary for a short time.

FRASER E. J. HAY, '37.

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